

CLAIMS

1. An apparatus for conveying a specimen comprising a probe for conveying a specimen to be observed, and temperature control means for
5 controlling a temperature of said probe whereby said sample does not change during conveyance.
2. A specimen-obtaining apparatus comprising:
a stage for supporting a sample;
10 first temperature control means which regulates a temperature of said sample;
means for isolating a part of said sample;
probe moving means for mounting and moving a probe;
15 a probe for obtaining a part of the sample isolated by said isolation means; and
second temperature control means for controlling a temperature of said probe.
- 20 3. A sample processing apparatus comprising:
a stage for supporting a sample;
first temperature control means for controlling a temperature of said sample;
ion beam generation means for irradiating said
25 sample with an ion beam;
detection means for detecting a signal emitted from said sample in response to the irradiation of

said ion beam;

a probe for obtaining a part of the sample
processed by the irradiation of said ion beam;

a sample table for evaluation;

5 second temperature control means for controlling
a temperature of said probe; and

third temperature control means for controlling
a temperature of said sample table.

10 4. The sample processing apparatus according to
claim 3, wherein

the ion beam generated by said ion beam
generation means is used to expose a face to be
acquired and said detection means is used to acquire
15 information under conditions that the temperature of
said sample is regulated to a predetermined
temperature by said first temperature control means;
and

section and attachment of the sample are carried
20 out in a state where the temperature of said probe
and sample is adjusted to a predetermined temperature
by said first and second temperature control means.

5. The sample processing apparatus according to
25 claim 3, wherein said first and second temperature
control means are provided with cooling means for
cooling said sample to a temperature equal to or

lower than a room temperature.

6. The sample processing apparatus according to claim 3, wherein said stage, said ion beam generation means, said detection means, said probe and said sample table are provided in a chamber with a controllable atmosphere, and said apparatus further comprises trap means for trapping a gas remaining in said chamber.

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7. The sample processing apparatus according to claim 3, wherein said first temperature control means includes a temperature-varying system in a portion onto which said sample is fixed; and the apparatus further includes:

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a sample stage enabling moving or inclining of the sample fixed thereon;

a probe stage having a movable tip;

a sample table for evaluation;

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first temperature detection means which is mounted in a part of said temperature-varying system to detect the temperature in the vicinity of the sample fixed to said temperature-varying system; and

temperature control means for controlling temperature of said temperature-varying system on the basis of the temperature detected by said first temperature detection means, thereby maintaining said

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sample at a predetermined temperature.

8. A sample processing apparatus according to claim 7, wherein an ion beam can be irradiated on a lateral surface of the sample held on said temperature-varying system.

9. A sample processing apparatus according to claim 7, wherein said temperature control means further includes second temperature detection means for directly detecting the temperature of the sample; and display means for displaying the temperature detected by said second temperature detection means.

10. A sample processing apparatus according to claim 9, wherein said temperature control means executes temperature control in said temperature-varying system on the basis of the temperatures detected by said first and second temperature detection means.

11. A sample processing apparatus according to claim 3, wherein said emitted signal is a secondary electron or secondary ion.

12. A sample processing apparatus according to claim 3, wherein said detection means includes a

first detector for detecting secondary electrons and
a second detector for detecting secondary ions.

13. A sample processing method comprising the
5 steps of:

controlling temperature of a sample, a probe and
a sample table;

sectioning or processing the sample by
irradiating a predetermined portion of the sample
10 with an ion beam from at least two angular directions
relative to a surface of the sample; and

connecting said probe to a part of said
sectioned sample.

14. A sample evaluating method comprising the
15 steps of:

controlling a temperature of a sample, a probe
and a sample table;

sectioning or processing the sample by
20 irradiating a predetermined portion of the sample
with an ion beam from at least two angular directions
relative to a surface of the sample;

connecting said probe to a part of said
sectioned sample;

25 isolating said sectioned sample to which said
probe has been attached;

attaching the isolated sample to said sample

table using the probe;

cutting off the probe; and

irradiating the sample attached to said sample
table with an evaluation beam for evaluation to

5 obtain from an emitted signal an image of a cross-
sectioned face of the sample generated by the
sectioning or processing step.

15. A conveying apparatus comprising:

10 a conveying member for conveying a sample for
observation under an electron microscope; and

temperature control means which regulates a
temperature of said conveying member;

wherein said temperature control means regulates
15 the temperature of said sample in such a manner that
it does not change before and after the conveyance.